



A big part of the sound of the Taurus was the way in which the VCF interfaced with the VCA, so on Raging Bull the VCA is always in the audio path. A toggle switch allows you to select 'always open' or CV control of the VCA from CV input 3. This is a very flexible arrangement, for example:

1. By sending an ADSR into CV3, the signal will go to the VCA CV input unattenuated and the VCF CV input via the attenuator
2. By sending a gate into CV3, and setting the attenuator to zero, the VCA can be gated while the gate has no affect on the VCF

**Key to PCB screen print:**

**n:** This signifies NPN BC547 transistors. Note the correct pinout as shown by the half circles.

**p:** This signifies PNP BC557 transistors. Note the correct pinout as shown by the half circles.

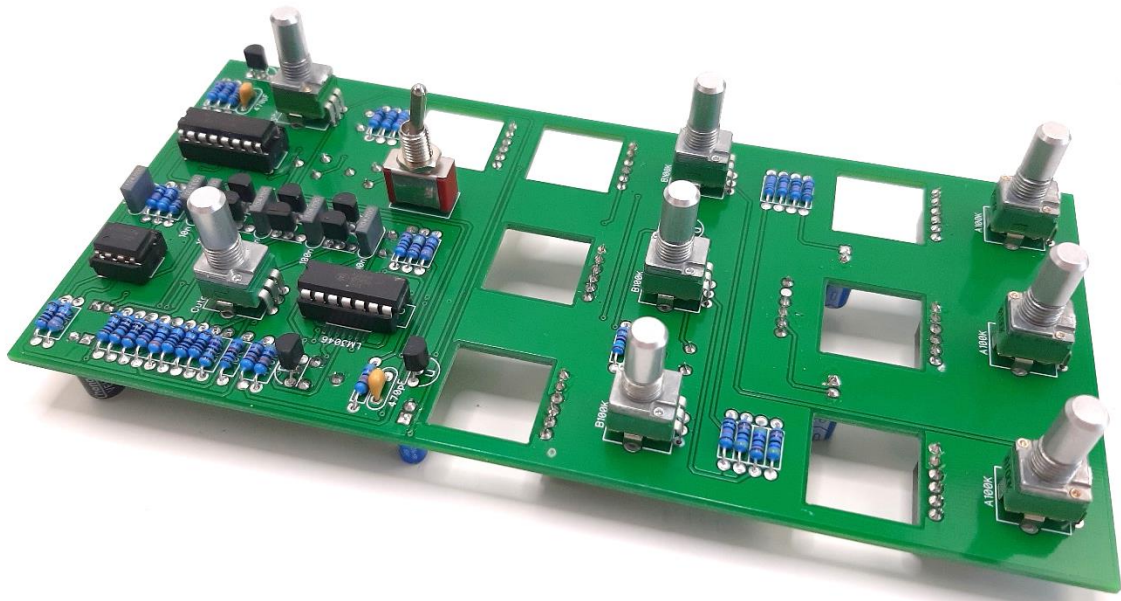
The PCB shows the correct orientation for BC547/BC557. Other transistor types can be used (eg 2N3904/2N3906), but please observe the correct pinout.

Please observe the correct polarity of the electrolytic capacitors.

<b><u>Bill of Materials</u></b>			
330R x 1	<a href="#">470pF x 2</a>	<a href="#">AS3046*</a>	<a href="#">A100K x 3</a>
470R x 1	<a href="#">10nF x 1</a>	<a href="#">TL072</a>	
1K x 8	<a href="#">100nF x 5</a>	<a href="#">LM13700</a>	<a href="#">B100K x 4</a>
2K2 x 2	<a href="#">220nF x 2</a>	<a href="#">BC547 x 8</a>	
2K7 x 2	<a href="#">10uF electrolytic x 2</a>	<a href="#">BC557 x 2</a>	<a href="#">C50K x 1**</a>
10K x 3	<a href="#">47uF electrolytic x 2</a>		
12K x 4	<a href="#">220uF electrolytic x</a>	<a href="#">8 pin socket</a>	<a href="#">1K trimmer x 2</a>
15K x 1	<a href="#">1</a>	<a href="#">14 pin socket</a>	<a href="#">100K trimmer x 2</a>
33K x 2		<a href="#">16 pin socket</a>	
47K x 3			<a href="#">SPDT toggle x 1</a>
68K x 1			
100K x 7			<a href="#">6.3mm socket x 7</a>
470K x 2			
2M2 x 1			<a href="#">Male 40 pin header x 1</a>
<a href="#">All resistors ¼ watt metal film.</a>			<a href="#">6 pin female header x 7</a>
			DOTCOM 6 pin header
* <a href="#">AS3046</a> , CA3046, LM3046 orUL1111			
** If you can't get C50K, use B50K instead			

## Main PCB assembly - FRONT

1. Solder all resistors.
2. Solder all IC sockets
3. Solder all transistors and non-electrolytic capacitors
4. Solder the 8 x Alpha pots and the toggle switch. Make sure they fit snug to the PCB.



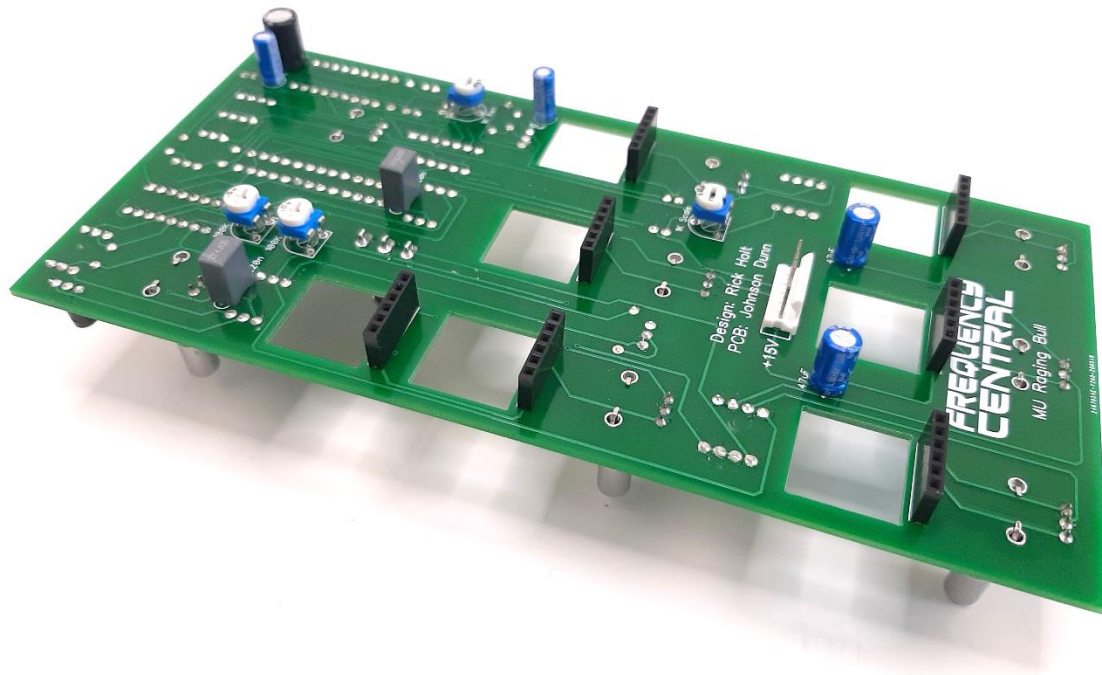
## Socket PCB

1. Solder the 7 sockets to the 7 Socket pcs, socket sits on it's silkscreen footprint



## **Main assembly – REAR**

1. Solder all of the 7 pin female headers. These will later accept the Socket PCBs
2. Solder the DOTCOM power header. Don't forget to make it 'keyed' by removing the second pin in (the PCB won't accept it otherwise – it's keyed too!)
3. Solder the electrolytic capacitors



## **Final Assembly**

1. Present the pcb to the panel, and bolt the two together using the washers and nuts for the pots and switch
2. Cut 7 pieces of male header to be 7 pins wide. Place the long end of each into the 7 female headers.
3. Present each socket pcb assembly to the main pcb, bolt into place, making sure that the male headers line up with their places on the socket pcs. Solder the male headers to the sockets pcs.

## Calibration

1. **VCA trimmer:** flick the toggle switch down, send a nice snappy ADSR into CV3 input. Adjust Bias trimmer to sweet spot, ie there is no DC thump. The chances are that that the sweet spot is around the mid position.
2. **Scale trimmer:** turn Emphasis all the way to self oscillation. Patch a 1V/oct source into CV input 1, with the attenuator fully clockwise. Play octaves and adjust the Scale trimmer until they are spot on.
3. **Freq trimmer:** you want to tweak this so that the filter is fully open when the Cutoff pot is fully clockwise.
4. **Res trimmer:** you can adjust exactly where the Emphasis knob starts to self oscillate. If in doubt, leave this trimmer in it's mid position.



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